

NATIONAL WEATHER SERVICE INSTRUCTION 10-1005

JANUARY 18, 2007

***Operations and Services
Climate Services, NWSPD 10-1005***

LOCAL CLIMATE OUTLOOKS

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>

OPR: OS4 (M. Brewer)

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Type of Issuance: Initial

SUMMARY OF REVISIONS: This new directive describes local climate products. The NWS Climate Services Division (CSD) will issue Local Climate Outlooks for specific locations in the United States. For outlooks in their area of responsibility, Weather Forecast Offices (WFO) will answer inquires, select locations, perform secondary quality control, add supplemental information, and report production problems to CSD.

(signed) _____

November 30, 2006 _____

Dennis H. McCarthy
Acting Director, Office of Climate,
Water, and Weather Services

Date

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1. Introduction. The NWS Climate Services Division (CSD) will issue Local Climate Outlooks for specific locations in the United States. For outlooks in their area of responsibility, Weather Forecast Offices (WFO) will answer inquiries, select locations, perform secondary quality control, add supplemental information, and report production problems to CSD ([per link](#)).
 2. Local Three-Month Outlooks (L3MO). An L3MO is a probabilistic outlook for a specific location of the 3 month average temperature (L3MTO), 3-month total precipitation, or average/total for other parameters. L3MTO will be the first L3MO available to users by the effective date of this instruction. L3MO products for other parameters will be available later. L3MO are available on the Internet (<http://www.weather.gov/climate/l3mto.php>) based on:
 - a. The 3-Month Outlook from the Climate Prediction Center (CPC). For the contiguous U.S. (CONUS), this would be the CPC climate outlook for the CPC divisional area in which the site resides. See [NWS Instruction 10-1001 \(Climate Outlooks\) for details](#).
 - b. CONUS sites only: A correlation between 3-month 1971-2000 climatological data for a local site and its respective CPC climate outlook division climatology, using a regression equation.
- 2.1 Mission Connection. The L3MO provides information to decision makers who control activities sensitive to three month and intra annual climate variation. L3MO enhances the level of detail and usability of CPC's 3-month climate outlooks. Therefore these outlooks will **not** help people planning events for specific dates or sub- periods, nor those seeking forecasts of monthly temperatures extremes. The L3MOs will be of most use for economic and risk planning, particularly when used together with climatic reference material ([see NWS Instruction 10-1004](#)).
- 2.2 Issuance Guidelines.
- 2.2.1 Creation Software. L3MO production uses CSD programming functions written in S language in a S+ environment. A basic language based automation process uses "Perl" (an open source software program) as a post-processor to parse S+ database output into Extensible Markup Language (XML) format. Graphics are generated with programs such as such as Graphic Interchange Format (GIF), Joint Photographic Experts Group (JPEG), and Hypertext Preprocessor (PHP).
- 2.2.2 Issuance Criteria. These are scheduled products.
- 2.2.3 Issuance Time. L3MO is issued on the internet concurrently with CPC's three month climate products on the third Thursday of each month around 8:30 a.m. Eastern local time.
- 2.2.4 Valid Time. L3MO is issued for the 13 three month outlook periods with lead times from 0.5 months to 12.5 months. For example, L3MO issued in mid-January, will be valid for February through April, March through May, April through June, and so on to February through April of the following year.

2.2.5 Product Expiration Time. The 0.5 month lead time outlook expires at the beginning of the valid time of the first 3 month outlook. The other outlooks expire when the next set of outlooks are issued (i.e. the third Thursday of the following month).

2.3. Technical Description. The L3MO will consist of a variety of graphs and corresponding tables and text. All L3MO products for each location can be accessed using several web navigational tools embedded in the graphics of national and local web pages and through the four main tabs located on each L3MO web page (top Figure 1a).

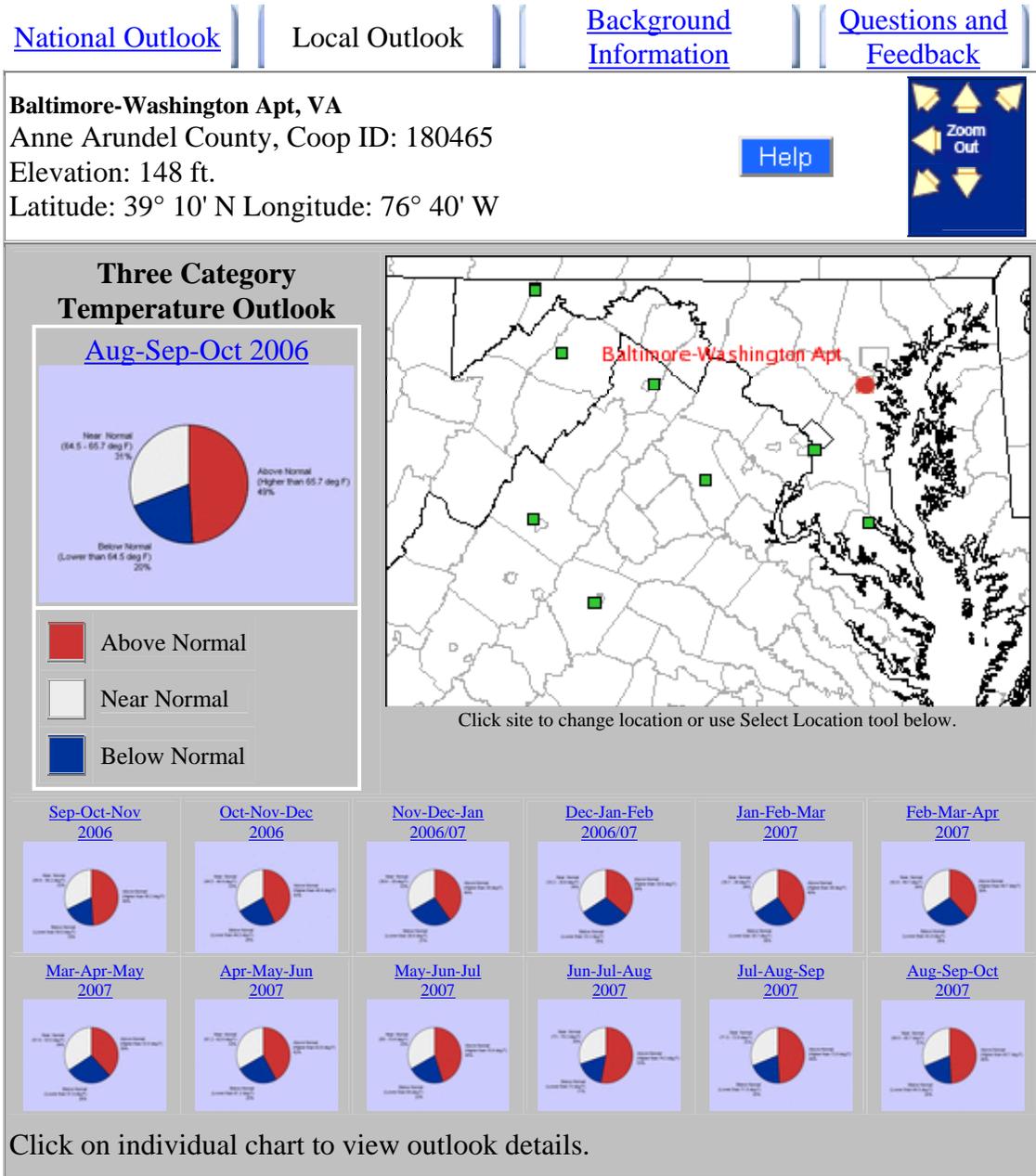


Figure 1a. Top part of a local L3MO web page.



Figure 1b. Bottom part of a local L3MO web page.

The “National Outlook” Tab (upper left of Figure 1a) contains the CPC L3MO in map format with links to other seasons available using a dropdown menu. The “Local Outlook” tab (to the right of the “National Outlook” tab) provides access to L3MO information in the formats described in the following sections.

2.3.1 Content.

a. Three Category Outlook: CSD will express the outlook as forecasted probability (in percent) that the average 3-month temperature will fall into each of three categories: above, below, or near normal. CSD’s reference to normal climatology comes from the 30-year (1971-2000) mean 3-month temperature and category limits. (See [NWS Instruction 10-1004](#) for details). CSD defines the categories as climatologically equally likely; e.g., the top 10 cases of a thirty year record define the above category, the middle 10 cases define the normal category, and the bottom 10 cases define the below category.

b. Range Outlook. CSD will express the expected range of the average 3-month temperature, total precipitation, or average/total for other parameters. Expected range outlooks are produced for five confidence intervals or levels of expected chance: 99%, 95%, 90%, 75%, and 50%.

c. Probability of Exceedance/non Exceedance (POE/PoNE) Outlooks. CSD will express the POE/PoNE outlooks as the expected chance of the average three month temperature, total precipitation, or average/total for other parameters exceeding or not exceeding a particular probability value. POE and PoNE are produced for 19 values: 99%, 98%, 97%, 96%, 95%, 90%, 80%, 70%, 60%, 50%, 40%, 30%, 20%, 10%, 5%, 4%, 3%, 2%, and 1%.

2.3.2 Format.

a. Three Category Outlook examples.

Baltimore-Washington Apt, VA
Anne Arundel County, Coop ID: 180465
Elevation: 148 ft.
Latitude: 39° 10' N Longitude: 76° 40' W

Three Category Temperature Outlook: Aug-Sep-Oct 2006

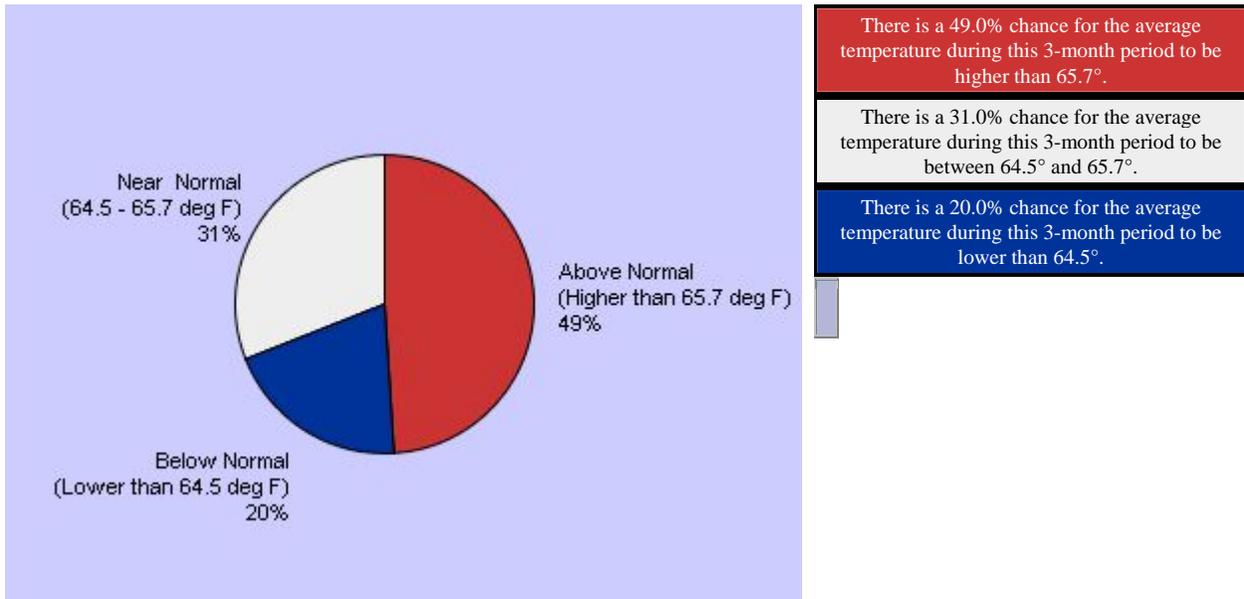


Figure 2. Example for L3MO “Pie” Chart combining 2 formats: graph and text interpretation statement. Issuance date was Thursday, July 21, 2006 (0.5 month lead).

Baltimore-Washington Apt, VA
 Anne Arundel County, Coop ID: 180465
 Elevation: 148 ft.
 Latitude: 39° 10' N Longitude: 76° 40' W

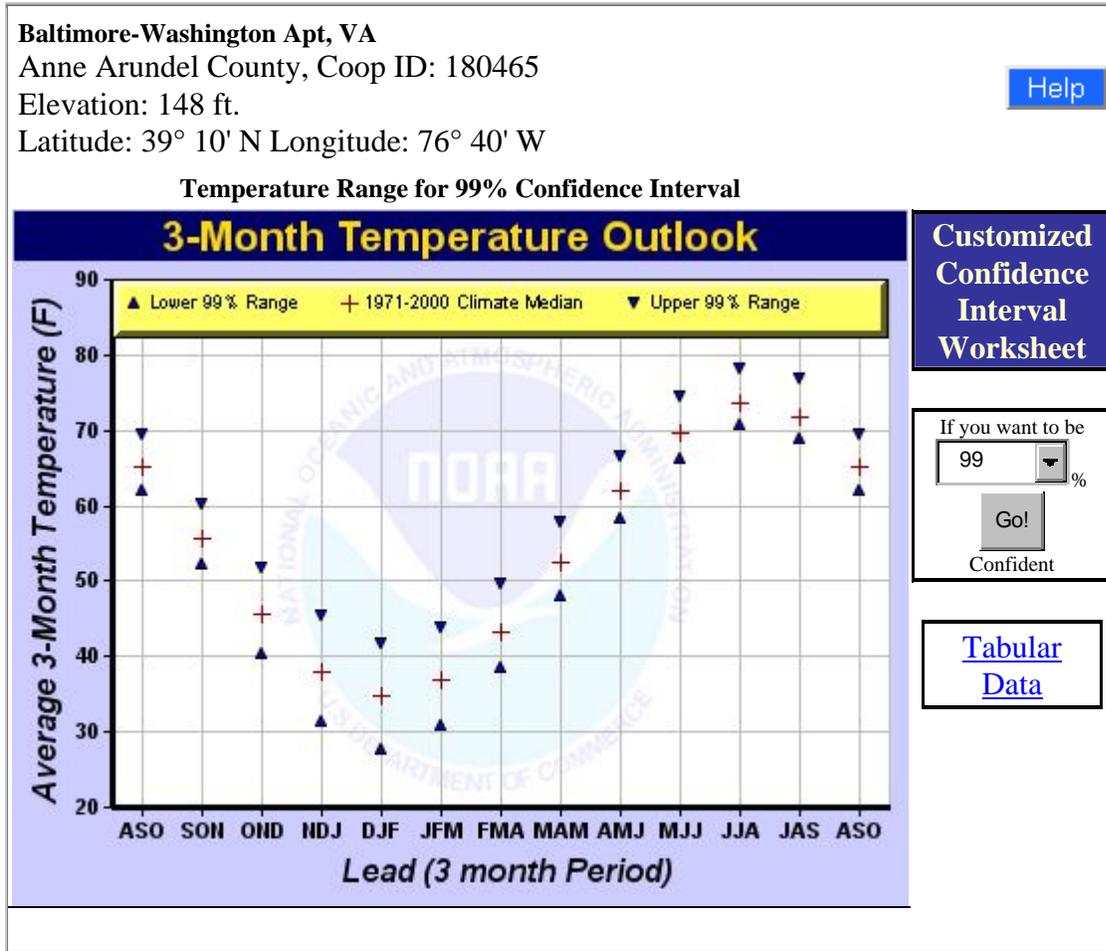
Three Category Outlook Table

Season	Below Normal		Near Normal		Above Normal	
	There is a chance for	temperature during this 3-month period to be lower than	There is a chance for	the average temperature during this 3-month period to be between	There is a chance for	temperature during this 3-month period to be higher than
Aug-Sep-Oct 2006	20.0%	64.5°	31.0%	64.5° and 65.7°	49.0%	65.7°
Sep-Oct-Nov 2006	19.0%	54.8°	32.0%	54.8° and 56.2°	49.0%	56.2°
Oct-Nov-Dec 2006	24.0%	44.5°	33.0%	44.5° and 46.4°	43.0%	46.4°
Nov-Dec-Jan 2006/7	27.0%	36.6°	33.0%	36.6° and 39°	40.0%	39°
Dec-Jan-Feb 2006/7	30.0%	33.2°	34.0%	33.2° and 35.6°	36.0%	35.6°
Jan-Feb-Mar 2007	26.0%	35.7°	34.0%	35.7° and 38°	40.0%	38°
Feb-Mar-Apr 2007	28.0%	42.8°	34.0%	42.8° and 44.7°	38.0%	44.7°
Mar-Apr-May 2007	28.0%	51.9°	34.0%	51.9° and 53.5°	38.0%	53.5°
Apr-May-Jun 2007	25.0%	61.2°	33.0%	61.2° and 62.6°	42.0%	62.6°
May-Jun-Jul 2007	22.0%	69°	33.0%	69° and 70.4°	45.0%	70.4°
Jun-Jul-Aug 2007	17.0%	73°	30.0%	73° and 74.3°	53.0%	74.3°
Jul-Aug-Sep 2007	20.0%	71.5°	31.0%	71.5° and 72.9°	49.0%	72.9°
Aug-Sep-Oct 2007	20.0%	64.5°	31.0%	64.5° and 65.7°	49.0%	65.7°

Legend: **Blue**, **Gray**, or **Red** Shading indicate an enhanced chance for **Below**, **Near**, or **Above** Normal Category respectively.

Figure 3. Example of L3MO combining two formats: data table and text interpretation statements Issuance date was Thursday, July 21, 2006 (0.5 month lead).

b. Range Outlook example.



Current % Confidence Interval Table													
	ASO	SON	OND	NDJ	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO
Median	65.7	56.1	46.0	38.3	34.6	37.3	44.0	53.0	62.3	70.2	74.4	72.8	65.7
99%	69.3	60.1	51.7	45.3	41.6	43.9	49.7	57.8	66.4	74.3	78.1	76.7	69.3

Figure 4. Example of L3MO Temperature Range Plot uses graph, table and text interpretation formats. Issuance date was Thursday, July 21, 2006. ASO=August, September, and October; SON=September, October, and November; etc.

c. POE outlook example.

Baltimore-Washington Apt, VA
Anne Arundel County, Coop ID: 180465
Elevation: 148 ft.
Latitude: 39° 10' N Longitude: 76° 40' W

Help

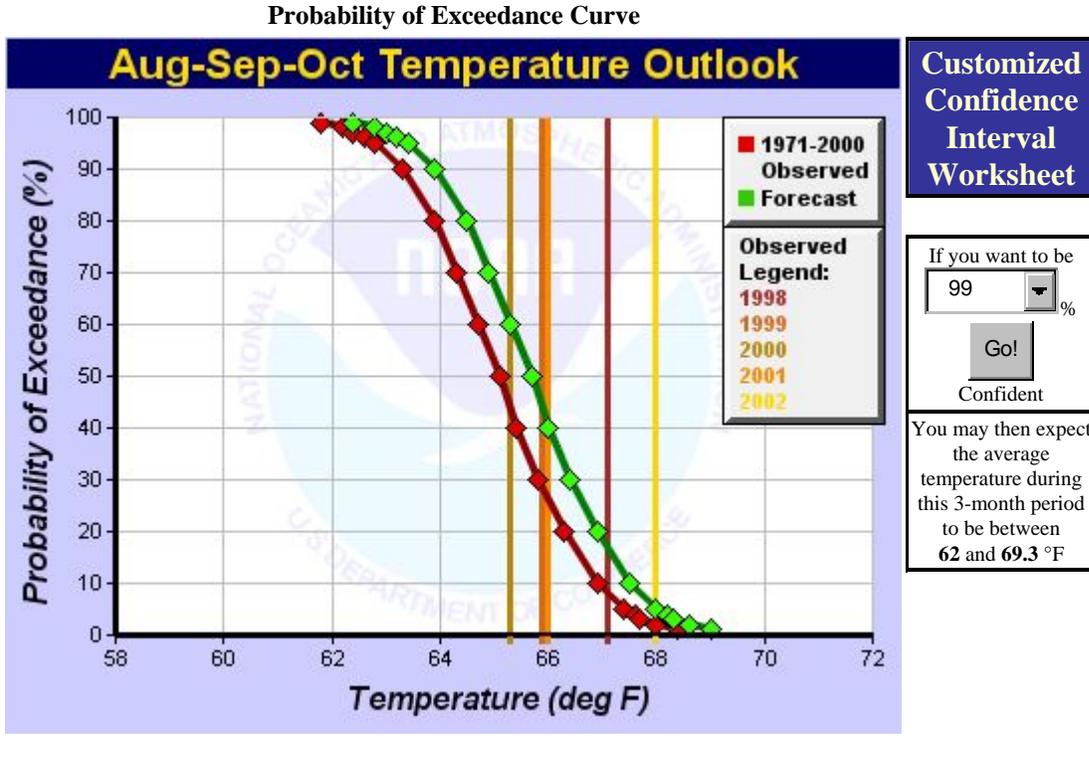


Figure 5. Example of L3MO POE presented in graph format: x-y plot. Issuance date was Thursday, July 21, 2006 (0.5 month lead).

Experimental Three-Month Temperature Outlook (Issued: July 2006)

Baltimore-Washington Apt, VA

Anne Arundel County, Coop ID: 180465

Elevation: 148 ft.

Latitude: 39° 10' N Longitude: 76° 40' W

Probability of Exceedance Table

	ASO	SON	OND	NDJ	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO
**R	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9
99%	62.4	52.6	40.9	31.9	28.3	31.4	38.9	48.6	58.6	66.5	71.0	69.3	62.4
98%	62.8	53.0	41.5	32.7	29.1	32.1	39.5	49.1	59.0	66.9	71.4	69.7	62.8
97%	63.0	53.3	41.9	33.2	29.5	32.5	39.9	49.5	59.3	67.2	71.6	70.0	63.0
96%	63.2	53.5	42.2	33.5	29.9	32.9	40.2	49.7	59.5	67.4	71.8	70.2	63.2
95%	63.4	53.6	42.4	33.8	30.2	33.1	40.4	49.9	59.7	67.6	72.0	70.3	63.4
90%	63.9	54.2	43.2	34.8	31.2	34.1	41.2	50.6	60.3	68.2	72.5	70.9	63.9
80%	64.5	54.8	44.2	36.0	32.4	35.2	42.2	51.4	61.0	68.9	73.1	71.6	64.5
70%	64.9	55.3	44.9	36.9	33.2	36.0	42.9	52.0	61.5	69.4	73.6	72.0	64.9
60%	65.3	55.7	45.5	37.6	33.9	36.7	43.5	52.5	61.9	69.8	74.0	72.5	65.3
50%	65.7	56.1	46.0	38.3	34.6	37.3	44.0	53.0	62.3	70.2	74.4	72.8	65.7
40%	66.0	56.5	46.6	39.0	35.3	38.0	44.6	53.5	62.7	70.6	74.7	73.2	66.0
30%	66.4	56.9	47.2	39.7	36.1	38.7	45.2	54.0	63.1	71.0	75.1	73.6	66.4
20%	66.9	57.4	47.9	40.6	36.9	39.5	45.9	54.6	63.6	71.5	75.6	74.1	66.9
10%	67.5	58.1	48.9	41.8	38.1	40.6	46.9	55.4	64.3	72.2	76.2	74.8	67.5
5%	68.0	58.6	49.7	42.8	39.1	41.5	47.7	56.1	64.9	72.8	76.8	75.3	68.0
4%	68.2	58.8	49.9	43.1	39.4	41.8	47.9	56.3	65.1	73.0	76.9	75.5	68.2
3%	68.3	59.0	50.2	43.4	39.7	42.1	48.2	56.5	65.3	73.2	77.1	75.7	68.3
2%	68.6	59.3	50.6	43.9	40.2	42.6	48.6	56.8	65.6	73.4	77.4	75.9	68.6
1%	69.0	59.7	51.2	44.7	40.9	43.3	49.2	57.4	66.0	73.9	77.8	76.3	69.0
*Mean	65.7	56.1	46.0	38.3	34.6	37.3	44.0	53.0	62.3	70.2	74.4	72.8	65.7

Color Legend	Deviation from Climatology (deg F)
	< -2.5
	-2.0 thru -2.5
	-1.5 thru -2.0

Color Legend	Deviation from Climatology (deg F)
	-0.5 thru -1.0
	-0.5 > deg F < 0.5
	0.5 thru 1.0

Color Legend	Deviation from Climatology (deg F)
	1.5 thru 2.0
	2.0 thru 2.5
	> 2.5

Figure 6. Example of L3MO Temperature POE Table. Issuance was Thursday, July 21, 2006.

2.4 Updates, Amendments, and Corrections. CSD will not issue updates or amendments. They will issue corrections as needed.